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CHAPTER II

THE MEANING OF THE FINDINGS

1. *Scope of Discussion*

The main factual findings of this study, insofar as they deal with the role of financial intermediaries in the American economy and with significant structural changes in their operations, summarized in the preceding chapter on the basis of the detailed material of Chapters III to IX and Appendixes A to I, may be restated as follows:

1. There has been a substantial and generally sustained rise since the middle of the nineteenth century in the proportion of total national assets and of all intangible assets that is held by financial intermediaries. The rapidity of the rise varied, and its pattern differed somewhat, as between the share in total national assets, that in all intangible assets, and that in all claims, as is shown in Chart 1.

2. Among financial intermediaries the role of the banking system has declined during most of the past century, at least if measured by total assets. The share of other financial intermediaries has correspondingly increased, particularly that of private and government insurance organizations.

3. The share of financial intermediaries in the external financing of all other groups of economic units taken together has been somewhat above one-half for the entire period from 1901 to 1952. There apparently has been a tendency for this share to rise moderately. The increase almost disappears, however, if financing of the federal government is eliminated from the calculation.

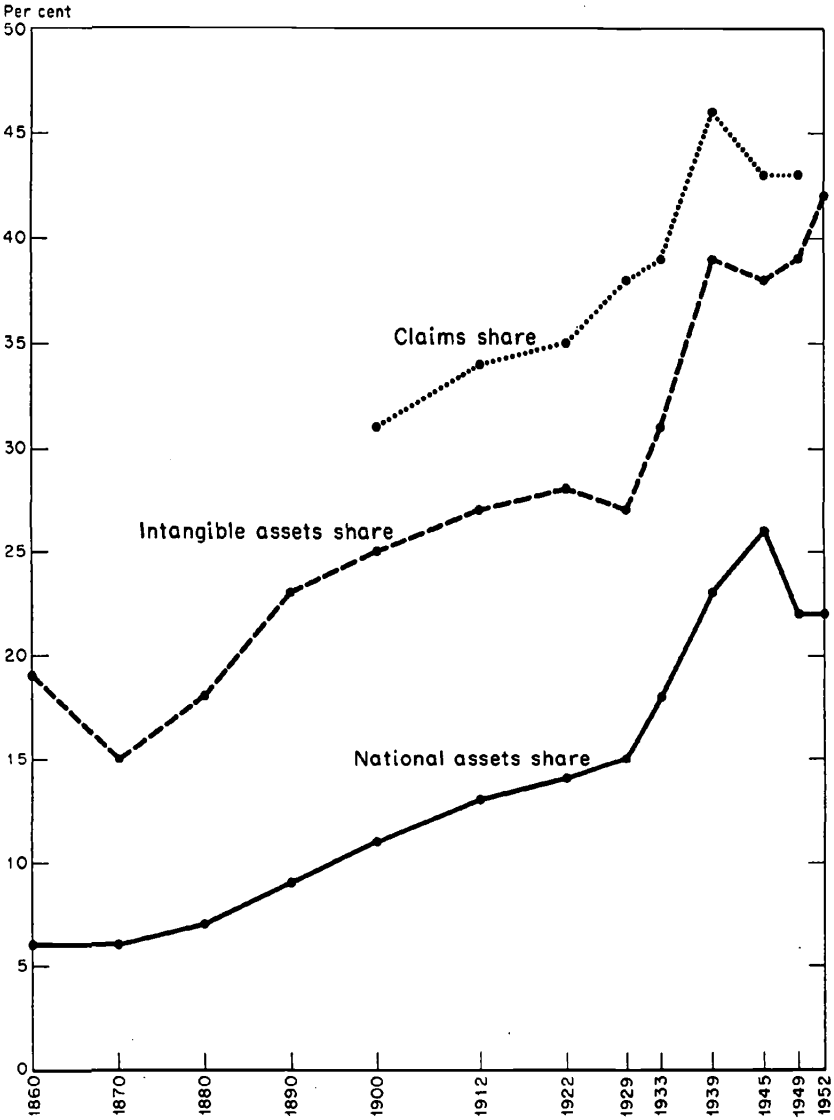
4. Financial intermediaries have increased in importance as outlets for personal current saving. Their share has risen from approximately one-third up to 1929 to over one-half since the 1930's, if consumer durables are included. If they are excluded, the rise is even more marked—from approximately two-fifths to three-fourths.

5. Nonfarm households have at all times during the last fifty years supplied most of the funds of financial intermediaries. Their share appears to have increased slightly, from approximately three-fifths in 1900 to two-thirds in 1952.

These are the main facts to be explained. A satisfactory explanation would require a well-developed general theory of financial in-

CHART 1

Share of Financial Intermediaries in National Assets, Intangible Assets, and Claims, Selected Dates, 1860-1952



Source: Tables 96 and 99.

termediaries. Such a theory would have to show, in terms of basic economic concepts, what determines the role of financial intermediaries in the process of saving and investment, and would have to explain the size and character of financial intermediaries, the nature of their assets, their share in financing other sectors of the economy, and their importance as channels of saving for the other sectors. The general theory of financial intermediaries thus would be a parallel, although covering a much broader field, to that part of monetary theory which deals with the determinants of the volume of money. At the same time such a theory would constitute part—and possibly the most important part—of an explanation of what determines the volume of all intangible assets in an economy, particularly the relationship of the volume of intangible to that of tangible assets.

Unfortunately we have only the beginnings of a general theory either of intangible assets or of financial intermediaries.[1] From a survey of these elements and from attempts to expand them, it becomes evident that the development of a general theory of financial intermediaries is a task that cannot be handled as a mere accompaniment to this essentially descriptive study of financial institutions in the United States. The discussion in this chapter has therefore been limited to (1) a listing of the factors which a general theory of financial intermediaries will probably identify as the main determinants of the role of financial intermediaries in the economic and financial structure,[2] a role measured primarily by the share of financial intermediaries in aggregate national assets; and (2) a brief consideration of the actual trend of these determining factors during the last fifty to a hundred years in order to ascertain to what extent the facts correspond to theoretical expectations.

[1] Almost the only approach to such a theory, and necessarily still a rather elementary one, that I was able to find in the literature when this chapter was written is Chapter II of B. Kragh's *Prisbildningen på kreditmarknaden*, Upsala, 1951. Since then considerable progress towards a general theory of financial intermediaries has been made in two joint articles by John Gurley and Edward Shaw ("Financial Aspects of Economic Development" in *American Economic Review*, September 1955; and "Financial Intermediaries and the Saving-Investment Process" in the *Journal of Finance*, May 1956).

[2] For two other slightly more detailed though still rudimentary attempts at analyzing the determinants of the volume of intangible assets see R. W. Goldsmith, "The National Balance Sheet of the United States of America, 1900-1949," *Income and Wealth*, Series IV, Bowes and Bowes, 1955, and "Financial Structure and Economic Growth in Advanced Countries," *Capital Formation and Economic Growth*, Princeton University Press for the National Bureau of Economic Research, Special Conference Series No. 6, 1956.

2. *Immediate Determinants of Role of Financial Intermediaries in Economic Structure*

a. BASIC RELATIONS

Of the different approaches to analyze the factors which determine the size of financial intermediaries and their position in a country's economic and financial structure, we shall use the national balance sheet, and more specifically its right-hand side which shows liabilities and equity of the various sectors of the economy. This approach has been chosen because it is relatively simple, because it can be followed through in quantitative terms, and because it seems particularly relevant, as it centers on the crucial question of what determines the share of financial intermediaries in the flow of funds from saving to investment. While the number and definition of the various types of funds and the resulting assets and liabilities are to some extent arbitrary, it is felt that the arrangement set forth in Table 1 is sufficiently detailed to avoid obliterating significant differences among types of assets and liabilities, and at the same time not too detailed to obscure essential structural characteristics.

It will be seen from Table 1 that in the United States during the past half century, the size of financial intermediaries (other than trust departments) has been influenced primarily by the size of three components: the volume of nonmetallic money; the volume of insurance and pension fund reserves; and the volume of other short-term liabilities (chiefly time deposits) of financial intermediaries. On the other hand, the size of total national assets depends primarily on four other items, which overlap only to a moderate extent with those important for financial intermediaries: equity, both of business and ultimates (households, nonprofit organizations, and government); bonds and notes; mortgages; and accounts payable (included in and forming the bulk of item I-1.b of Table 1).

The broadest statement which can be made under this approach is that the role of financial intermediaries is determined primarily by the ratio of the sum of money, insurance reserves, and (nonmonetary) deposits in financial intermediaries to the sum of equities, long-term debt, and accounts payable of all other economic units. This, however, is only a formal and provisional explanation. It is no help at all unless we succeed in identifying the factors that in turn determine the absolute or at least the relative size of the numerator and the denominator of this ratio, and the absolute size of the components of each or at least ratios among them.

TABLE 1

Position of Financial Intermediaries in the National Balance Sheet

(billions of dollars)

	1900			1929			1949		
	National Total (1)	*Financial Intermediaries*[a] (2)	*Other Sectors* (3)	*National Total* (4)	*Financial Intermediaries* (5)	*Other Sectors* (6)	*National Total* (7)	*Financial Intermediaries* (8)	*Other Sectors* (9)
I. *Liabilities*	50	15	35	354	131	223	924	390	534
1. Short-term									
a. Money (non-metallic)	7	6	1	32	28	4	146	121	25
b. Other	21	4	17	149	50	99	242	113	129
2. Long-term									
a. Insurance and pension reserves	2	2	—	20	20	—	104	104	—
b. Mortgages	7	—	7	47	—	47	66	—	66
c. Bonds and notes	10	—	10	76	3	73	316	2	314
3. Personal trust funds[b]	3	3	..	30	30	..	50	50	..
II *Equities*	109	3	106	627	23	604	1092	58	1034
1. Business enterprises									
a. Corporations	23	3[c]	20	153	23[c]	130	285	58[c]	227
b. Unincorporated	6	—	6	28	—	28	69	—	69
2. Ultimates									
a. Households	75	—	75	425	—	425	849	—	849
b. Governments	5	—	5	21	—	21	−111	—	−111
III. *Total Assets (liabilities + equities)*	159	18	141	982	154	828	2016	448	1568

[a] Figures shown in cols. 2, 5 and 8 differ from those given elsewhere in this study (e.g. Table 10) in that they are derived from national balance sheet totals which do not reflect later revisions made in the estimates of the balance sheets of financial intermediaries. Also the national balance sheets totals, apart from other minor differences, do not include among financial intermediaries finance companies, mortgage companies, and security brokers and dealers, but do include bank holding companies.

[b] Classified as liabilities although legally no creditor-debtor relationship exists. National total makes no allowance for personal trust funds administered by nonbank trustees.

[c] Includes equity in nonprofit and unincorporated financial intermediaries.

Source: *A Study of Saving . . .*, Vol. III, Tables W-9, W-12 and W-16, except for line I-1.a which is the sum of currency (*loc. cit.*) and demand deposits (Table A-3.a in Appendix A, below).

Limiting ourselves to the quantitatively most important factors involved in the determination of the size of financial intermediaries, and concentrating on the interrelation between the various items rather than on their absolute size, we may then approximate the share of financial intermediaries in national assets (that is, in the sum of national liabilities and equities) by the following expression:[3]

$$\frac{A_f}{A_n} \sim \frac{M_n}{A_n} + \frac{I_n}{A_n} + \frac{L_f}{A_n} + \frac{E_f}{A_n}; \text{ or}$$

$$\frac{A_f}{A_n} \sim \frac{M_n}{A_n} + \frac{I_n}{A_n} + \left(\frac{L_f}{L_n} \times \frac{L_n}{A_n}\right) + \left(\frac{E_f}{E_{f+b}} \times \frac{E_{f+b}}{A_n}\right).$$

We are now left with the task of finding economically relevant determinants for each of the four components of this relation.

Before doing so it may be well to stress what is already evident from the form in which the various components have been written, viz., that they can be arranged in two groups of two each. The first group consists of the ratio of nonmetallic money to total national assets and the ratio of insurance and pension reserves to total national assets. The distinctive feature of these two ratios is that the numerator in each case refers to a type of liability, the debtor of which is necessarily a financial intermediary.[4] If an economic

[3] The following symbols are used in this chapter, including Tables 2 to 5:

A Aggregate assets
D Debt of federal government in excess of its assets (sometimes called "dead-weight debt" in later discussion)
E Equity (net worth)
I Insurance reserves of all types
I' Insurance reserves of private life insurance companies
I'' Insurance reserves of pension and retirement funds
L Liabilities (excluding money and insurance reserves)
L' Short-term liabilities (excluding money and insurance reserves)
L'' Long-term liabilities
λ Layering ratio (consolidated assets ÷ combined assets)
M Money in circulation (excluding full-bodied metallic money)
P General price level
P' Common stock prices
P'' Prices of structures and equipment
T Total tangible assets
T' Tangible reproducible assets used in production
Y Income

The subscripts b, f, h, u, and n refer to business, financial intermediaries, households (including private nonprofit organizations), ultimates (households and governments), and all units, respectively.

[4] Full-bodied metallic currency in a regime of free coinage is an exception

unit wants to hold money, in the sense of the accepted means of payment or of the store of unspecialized purchasing power, this must be done through one of the financial intermediaries which are responsible in a modern economy for the issuance or redemption of money; in the United States at the present time, to take an example, it must be done essentially through the Federal Reserve system or through the checking departments of commercial banks. Similarly, if one wishes or is required by law to have insurance protection, whether in the form of property or life insurance or in the form of an annuity or pension, he must use an insurance company or another insurance organization, i.e. a financial intermediary. There is thus no competition for funds between financial intermediaries and other debtors for these two types of liabilities. Competition, however, exists among all items on the right-hand side of the balance sheet of an individual economic unit, hence of groups of units, and finally of the nation as a whole. Money and insurance reserves are therefore to some extent in competition with other claims against financial intermediaries, and this competition—reflecting the degree of affinity or substitutability of the different types of assets—may be fairly pronounced at the borderline.[5] The distinction made in the text is far from being absolute, but it nevertheless has its uses.

In the case of the two other components of the basic relation (other liabilities and equity), financial intermediaries account for only a fraction of the total amounts outstanding in the economy; that is, they have to compete directly for them with other debtors and issuers. The difference in the situation is indicated in the basic relation by expressing the ratio of financial intermediaries' liabilities to the national total as a product of (1) the share of financial intermediaries in the given form of liability and (2) the ratio of the national total of this form of liability to total national assets. It is thus made clear that two separate determinants must be distinguished, each of which may in turn be the result of several relevant economic factors.

Turning now to the actual course of these ratios since the turn of the century, Table 2 shows that the four main components of the

in that it permits the holding of money without use of a financial intermediary, but it is not a situation typical of a modern economy. Fractional coins or Treasury nonmetallic currency are exceptions only if the Treasury itself is not regarded as a financial intermediary to the extent of its money-issuing activities.

[5] Time deposits in banks, for example, are in direct competition on the one side with demand deposits representing money, and on the other side with paid-up insurance contracts.

basic relation have contributed in different degree to the trend which is to be explained, the secular increase in the ratio of financial intermediaries' assets to national assets. More than one-third of the rise in the ratio, which increased by more than 11 percentage points, or nearly doubled, between 1900 and 1949, is due primarily to the second component (the share of insurance reserves in national assets), while very little is due to the fourth component (the share of financial intermediaries' equity in national assets). It will be noticed, however, that all four components increased for the period as a whole, and that in all cases the increase amounted to at least one-half of the 1900 level.

There is a considerable difference between the two subperiods before and after 1929. During the first thirty years, when the total ratio increased slowly, advances in relation to national assets were substantial in only one case (other liabilities). One component (the ratio of money to national assets) even showed a decline. The second period, on the other hand, was dominated by sharp increases in the two noncompetitive types of funds (money and insurance

TABLE 2

Main Components of Financial Intermediaries' Share in National Assets

	PERCENTAGE SHARE, IN NATIONAL ASSETS, OF:					PERCENTAGE DISTRIBUTION OF FINANCIAL INTERMEDIARIES' TOTAL ASSETS			
				Financial Intermediaries'				Financial Intermediaries'	
YEAR	*Total Assets of Financial Intermediaries*	*Money*	*Insurance Reserves*	*Other Liabilities*	*Equity*	*Money*	*Insurance Reserves*	*Other Liabilities*	*Equity*
1900	11.9	4.4	1.0	4.9	1.6	37	9	41	13
1912	13.3	4.4	1.3	5.8	1.8	33	10	43	14
1922	15.0	4.4	1.4	7.6	1.6	29	9	51	11
1929	16.0	3.2	2.0	8.5	2.3	20	13	53	14
1933	18.7	3.6	3.4	9.3	2.4	19	18	50	13
1939	24.5	7.0	4.1	11.0	2.4	28	17	45	10
1945	26.1	10.0	4.7	8.9	2.6	38	18	34	10
1949	23.6	7.3	5.2	8.2	2.9	31	22	35	12
1952[a]	23.4	6.7	5.3	8.5	2.9	29	23	36	12

[a] The figures for 1952 are rough preliminary estimates. Since no complete breakdown into components was available at the time of writing, and changes since 1949 are apparently small, the 1952 ratios are as a rule not discussed in the text.

Source: *A Study of Saving . . .*, Vol. III, Tables W-9 to W-16 (for 1900 to 1949).

reserves), both of which more than doubled their share in national assets. In marked contrast the two other, competitive, components hardly increased at all relative to national assets.

An understanding of the movements of the share of financial intermediaries in national assets thus requires separate discussion of its four main components. Elements of such an analysis are presented in the next four sections, starting in each case with a brief theoretical discussion of the main factors that influence a given component, and following with a glance at the actual course of the component and its determinants over the last half century. An attempt has been made to use the same factors in the statistical illustration as in the theoretical explanation, but some of the requisite information is not yet available.

b. SHARE OF MONEY IN NATIONAL ASSETS

If all money in circulation is issued by financial intermediaries—as may be assumed here for the sake of simplicity[6]—the public's demand for money determines the amount of liabilities of money-issuing financial intermediaries, and thus fixes within narrow limits the total size of their assets, though not the distribution among different types of assets. Under contemporary American conditions this means that the volume of check (demand) deposits of commercial banks—one of the largest components of the funds of financial intermediaries—is determined primarily by the public's demand for cash.[7]

[6] Actually, part of the money in circulation in the United States is issued by the Treasury rather than by the banking system. The share of Treasury currency has generally been small enough—it amounted to approximately 3 per cent of the total in 1952 though to somewhat more in earlier periods (e.g. 8 per cent in 1929 and as much as 20 per cent in 1900 if silver and minor coin is included)—to justify the assumption made in the text.

[7] This formulation does not imply acceptance of the "cloakroom" theory of banking, according to which the volume of loans and investments of money-issuing financial intermediaries is limited to previous deposits. A detailed discussion which extended over a generation, starting in this country in 1921 with the publication of Chester Arthur Phillips' *Bank Credit*, should have made it clear how and why the banking system as a whole can and does expand (or contract) the volume of its deposits as the result, rather than the cause, of changes in the volume of its own loans and investment, even though the individual bank does in fact depend on the volume of its deposits in expanding (or contracting) its assets. A banking system is thus able to keep in circulation more (or less) money than the public would want to hold at unchanged prices and interest rates. Such divergencies, however, will be temporary. Sooner or later an equilibrium is established—to some extent by the public's decisions about borrowing from and repaying debt to banks—among the volume of money, the level of prices and interest rates, and the proportion of its income, transactions or assets, that the public wants to keep in cash.

In the search for the determinants of the volume of money a distinction must be made, at least in theory, between transaction (active) money and reserve (inactive) money. Transaction money is that part of the total money in circulation that economic units hold for the specific purpose of carrying out their basic economic activities (buying and selling commodities and services, and certain transactions in intangible assets). Transaction money may be regarded as including a customary safety margin for which allowance must be made in calculating cash requirements. Reserve money is a residual, held either as a reserve for less definitely anticipated contingencies or simply as undesignated general purchasing power. It thus represents for individual economic units a temporary use of funds, but for the entire economy, a permanent block—though one of changing size and changing ownership.

Monetary theorists have given much thought to the factors which determine the level of the changes in the volume of money demanded by the public, and in recent decades have even devoted considerable statistical study to the subject. Unfortunately, from the point of view of a theory of financial intermediaries, the relations that have been explored are those between the volume of money and income or interest rates, rather than those between money and other assets. The exact formulation of the factors relating the volume of money to income varies greatly, but in the case of transaction money it will usually include the following three characteristics of the economic process, some of which are of a rather complex nature:

1. Degree of monetization (proportion of all transactions effected against money).

2. Degree of layering within the economy (number of independent cash-holding units in the chain between producers and final consumers, and between savers and investors).

3. Length, regularity, and synchronization of the payment and expenditure periods of different groups of economic units and different types of transactions.

With a given volume of income, the volume of active money is higher the longer the average payment and expenditure period (the higher the proportion of types of transactions and groups of economic units with relatively long periods); the more payments and expenditures are synchronized, i.e. occur on the same dates; the greater the deviation from the standard pattern in receipts and expenditures with which cash holders have to reckon; and the

greater the degree of layering (the greater the number of cash-holding units involved in the same process). The determinants of the ratio of active money to income thus are partly organizational (e.g. the length and synchronization of payment periods) and partly psychological (e.g. the allowance for variances in receipts and expenditures).

The factors that determine the volume of inactive money outstanding at any one time in an economy, and the changes in that volume, are probably more varied and not easily amenable to quantification. To say, as is often done, that they depend on the "liquidity preference" of the different groups of economic units does not help much unless the form of the function is specified—that is, until a statement can be made in quantitative terms about the relationships of the amount of inactive money held and other measurable economic variables such as past, present, and expected incomes, asset holdings, prices, and interest rates. Very little is as yet known about these relationships. To explore the determinants of the volume of either active or inactive money is beyond the compass of this study, but it is well to realize that these factors determine the size of a considerable part of the funds of financial intermediaries.

Using the symbols defined earlier in the chapter, the ratio we have to explain is M_n/A_n. This ratio is usually regarded in monetary theory—insofar as an attempt is made at explaining it—as a weighted average of ratios between cash holdings and total assets of different groups of economic units, or perhaps better still, as a combination of two such weighted averages, one for transactions money and the other for reserve money (although the latter separation cannot yet be carried over easily into statistical calculations). To bring out the relations which are particularly relevant to a theory of financial intermediaries it is preferable, however, to break the over-all ratio into four factors:

$$\frac{M_n}{Y_n}, \frac{Y_n}{E_u}, \frac{E_u}{E_n}, \text{ and } \frac{E_n}{A_n}.$$

The first of these factors is essentially the same thing as the well-known Cambridge k of the fundamental equation $M = kY$. The second factor is the reciprocal of the capital-output ratio multiplied by the ratio of reproducible tangible assets used in production (the numerator of the capital-output ratio) to total tangible assets,

$$\frac{Y_n}{T'_n} \times \frac{T'_n}{T_n},$$

since on a national level $E_u = T_n$ (the equity of all ultimate domestic economic units is equal to the value of all tangible assets adjusted for net foreign balance). The third factor is the share of the equity of ultimates in the aggregate equity of all economic units, and therefore is related to the relative size of the business sector in the economy, since the aggregate equity in the national balance sheet is the sum of the equity of ultimates and of business enterprises (corporations and unincorporated businesses). This ratio also reflects the proportion of cumulated saving by ultimates and by business enterprises if, but only if, there are no revaluations affecting the national balance sheet (i.e. no realized or unrealized capital gains and losses). The fourth factor, finally, is the complement of the national indebtedness ratio.

It may thus be said that the ratio M_n/A_n, the first of the four components in our basic relation, can be resolved into four economically significant ratios (or relatively simple transformations of them) applicable to the economy as a whole:

1. Cambridge k
2. The capital-output ratio
3. The ratio of business to ultimates' equities
4. The national indebtedness ratio

Turning from theory to observation, it is seen from Table 2 that the ratio of money[8] to national assets has shown during the first half of this century several marked and significant movements. After two decades of stability at slightly below 5 per cent of national assets, the ratio declined sharply during the 1920's, falling to not much over 3 per cent in 1929. This decline was an interesting concomitant of the peculiar inflation of that period which centered on the prices of equities without greatly affecting those of commodities. Between 1929 and the end of World War II the share of

[8] It may be well to recall that M_n throughout this section includes all money issued, i.e. total money in circulation in the usual definition (see e.g. *Banking and Monetary Statistics*, Board of Governors of the Federal Reserve System, 1943, pp. 11ff. and 404ff.) and also currency and bank deposits held within the banking system. The ratios M_n/A_n and M_n/Y_n shown here are therefore somewhat higher, and also rise somewhat more than the more familiar figures. This divergence could be avoided by splitting both ratios into two parts, one corresponding to Cambridge k as usually defined, the other being the ratio of M_n as used here and as defined customarily.

money in national assets rose precipitously and probably more rapidly than ever before, reaching a level of 10 per cent in 1945. Some of this rise proved to be temporary, but even in 1949 (and apparently in 1952 too) the ratio, then slightly above 7 per cent, was still higher than at any time between the turn of the century and the beginning of World War II.

It is unfortunately not possible to separate active and inactive money in a statistically satisfactory way, though it would seem that most of the sharp rise in the ratio M_n/A_n since 1929 is due to an expansion of inactive money relative to other assets. What is evident from Table 3 is that except during the Great Depression and possibly World War II, most of the changes in the ratio of total (active and inactive) money to national assets can be traced to changes in the ratio of money to income. Between 1900 and 1949 the ratio of money to assets increased by 66 per cent; that of money to income, by 55 per cent. This implies that the capital-output ratio has remained fairly stable—again except during the Great Depression and World War II—and column 3 of Table 3 indicates that this has been the case. The table also shows that fluctuations in the ratio of business to ultimates' equities (column 5) and the national indebtedness ratio (the complement of column 6) have been moderate and partly offsetting in their effect on the ratio of money to national assets, though they do exhibit a downward trend throughout the period. The sharp increase in Cambridge k during the second half of the period—indeed mostly during the 1930's—thus turns out to

TABLE 3

Determinants of Share of Money in National Assets

Year	$\frac{M_n}{A_n}$ (1)	$\frac{M_n}{Y_n}$ (2)	$\frac{Y_n}{T'_n}$ (3)	$\frac{T'_n}{E_u}$ (4)	$\frac{E_u}{E_n}$ (5)	$\frac{E_n}{A_n}$ (6)
1900	0.044	0.452	0.373	0.521	0.732	0.685
1912	.044	.449	.400	.478	.769	.672
1922	.044	.476	.364	.568	.705	.632
1929	.032	.372	.376	.511	.712	.639
1933	.036	.674	.210	.625	.708	.582
1939	.070	.858	.322	.634	.724	.554
1945	.100	.864	.568	.631	.676	.475
1949	.073	.701	.407	.695	.676	.542

Source: Derived from figures given in Appendix Table A-3.a, and *A Study of Saving . . .*, Vol. III, Tables W-9 to W-16 and Table N-1.

be the most important factor in the observed rise of the ratio of money to national assets between 1900 and 1949.[9]

C. SHARE OF INSURANCE RESERVES IN NATIONAL ASSETS

The over-all ratio to explain is I_h/A_n (assuming $I_n = I_h$), where I_h includes both the reserves on the entirely voluntary contracts with life insurance companies and fraternal orders and the reserves in social insurance, government, and private pension and retirement funds that involve various degrees of compulsion. The ratio as it stands does not lend itself well to analysis. For that purpose we have to split it into two factors, I_h/A_h and A_h/A_n. The first multiplicand (the ratio of the value of insurance reserves to aggregate assets) is limited to individuals since they are practically the only beneficiaries of insurance reserves. It should be further divided into two additive components, the ratio of voluntary life insurance reserves to aggregate assets, I'_h/A_h, and the ratio of social security, etc. reserves to assets, I''_h/A_h, components subject to quite different influences. The second multiplicand (A_h/A_n) is in the nature of a correction factor needed to fit the first multiplicand into the basic relation that uses total national assets as denominator. The substantive problem then is to identify the determinants of the two components of I_h/A_h, a task not made easier by the lack of previous work in the field.

The volume of voluntary insurance reserves is a good example of the varied influences that determine the size of financial intermediaries. At any one time at least half-a-dozen factors are important in determining the size of these reserves, e.g.: (1) the total amount of insurance in force; (2) the distribution of insurance in force by type of contract, particularly among ordinary life, term, endowment, and annuity contracts; (3) the past rate of increase of insurance in force; (4) the rate of earnings on assets; (5) the ratio of cost of operation to income; and (6) mortality.

[9] There is also some interest in factoring M_n/A_n differently, taking together, first, the two components reflecting basic economic factors (k and the capital-output ratio) and, secondly, the three remaining components. It will then be seen that the two newly formed combined components are quantitatively of about equal importance for M_n/A_n; that the first component

$$\frac{M_n}{Y_n} \times \frac{Y_n}{T'_n}$$

has fluctuated considerably more than the second; and that the long-term trends in the two components have been in different directions—upward in the first, downward in the second—but more pronounced in the first, the direction of which thus has also determined the upward trend in the over-all ratio M_n/A_n.

One of these factors is related positively to the amount of reserves of life insurance organizations: reserves will be higher, other things being equal, the larger the insurance in force. Other factors, however, are inversely related to reserves. The higher the mortality rate, the yields on assets, or the proportion of costs of operation to income, and the higher the rate of increase in insurance outstanding (the lower the average age of contracts), the lower, other things being equal, life insurance reserves. The relationship is more complicated for the distribution of insurance in force by type of contract. In relation to insurance in force, reserves are larger the higher the proportion of contracts that involve a substantial element of saving, particularly endowment and annuity contracts, and the lower the share of term insurance which calls for only very small or no reserves.

These formal relationships are only a partial answer as to the determinants of the size of life insurance reserves. There remains, above all, the question of what determines the amount of insurance of different types in force, particularly of ordinary life insurance including endowments and annuities, which is responsible for the bulk of reserves. The subject has not been sufficiently explored to enable us to make statements of general applicability and validity. It is evident, however, that individuals' motivations and attitudes with respect to their insurance contracts are complex. There is, first, the question of the extent to which individuals (other than those for whom insurance is primarily a means of financing funeral expenses) regard their life insurance contracts as protection against the risk of premature death or unexpectedly protracted old age, or treat them strictly as the means of systematic saving intended to provide for the anticipated period of retirement or to create an estate. To the extent that life insurance is purchased as protection to provide for the definite needs of old age, it is possible to calculate the amounts required by individuals, and hence to estimate, with the aid of information about mortality and length of working life and retirement period as well as about earnings and expense ratios, the corresponding reserves of life insurance organizations, once certain assumptions are made about the relation of desired protection or retirement income to average income during earning life. To the extent, however, that insurance is used as a means of saving without a definite goal in terms of protection, retirement income, or estate in the mind of the insured, such considerations do not apply. Another dichotomy is also relevant. Inso-

far as life insurance contracts are made with the purpose of adding the proceeds to individuals' total undesignated saving, life insurance is in direct competition with all other forms of saving. This is not the case insofar as accumulation of life insurance reserves is the result of straight life contracts, where they are necessitated by the combination of level premiums and changing mortality risks, or of annuity contracts.

While the difficulty in the case of voluntary life insurance reserves and their relation to individuals' aggregate assets is the multiplicity of factors involved and the complexity of several of them, the problem raised by the size of the reserves against social insurance and pension plans is rather one of indeterminacy. For most of these forms of insurance the amount of reserves is determined only in part, and often only in minor part, by actuarial calculations; and beneficiaries have little if any direct voice in determining the size of the reserves. Although we thus cannot say much about the determinants of the actual size of reserves, it may be well to list the main factors of rationally determined (i.e. actuarial), reserves of retirement and pension funds: (1) the number of people covered by pension and retirement plans entitled to benefit payments, and their income; (2) the length of retirement life (the life after the average age at which benefit payments start); (3) mortality during retirement life; (4) average retirement income; (5) the rate earned on the assets of pension and retirement funds.

The absolute amount of reserves is directly related to factors 1, 2, and 4, and inversely related to factors 3 and 5. The question of primary interest here, however, is not the absolute level of reserves but their relation to national assets. If we assume that national assets are a constant multiple of national income or product (which means that the product of the capital-output ratio, the ratio of reproducible to total tangible assets, and the financial interrelations ratio is constant, though each of the three components may vary), we may also make some statements about the determinants of the ratio of reserves to national assets. Under that assumption,[10] the ratio will be positively related to: (1) the proportion of the population above retirement age entitled to benefits; (2) the ratio of the length of average retirement life to average working life; (3) the ratio of average retirement income to average

[10] Of course, unless the assumption of constancy of the ratio of national assets to income or product is made, this very ratio enters as an additional independent factor into the calculation of reserves and is inversely related to the size of required reserves.

working life income. The ratio will be inversely related, as before, to: (4) mortality during retirement life; (5) the rate earned on reserves. To these may be added a further, and in practice a very important, factor that probably is positively related to the ratio of reserves to national income: (6) the proportion of actuarially required reserves actually funded (i.e. represented by fund assets).

Table 4 shows the actual course since the beginning of the century of the ratio of insurance reserves to total household assets, and of the correction factor (the share of households in national assets), which has shown an irregular and rather slight downward trend over the period and thus has had only a minor effect. The movements of the ratio of reserves to household assets are characterized, first, by a sharp upward trend—the steepest shown for any of the four components of the share of financial intermediaries

TABLE 4

Determinants of Share of Insurance Reserves in National Assets

Year	$\frac{I_h}{A_n}$ (1)	$\frac{I'_h}{A_h}$ (2)	$\frac{I''_h}{A_h}$ (3)	$\frac{A_h}{A_n}$ (4)
1900	0.010	0.019	—	0.528
1912	.013	.025	—	.538
1922	.014	.027	.001	.499
1929	.020	.036	.004	.500
1933	.034	.062	.011	.461
1939	.041	.074	.018	.449
1945	.047	.063	.040	.451
1949	.052	.063	.049	.463

Col. 2 includes (and col. 3 excludes) insured pension plans. If the reserves attributable to these plans are shifted from col. 2 to col. 3, on the argument that many of these plans have a semicompulsory character, the figures for the last five dates would be slightly changed as follows:

	Col. 2	*Col. 3*
1929	0.034	0.006
1933	.060	.013
1939	.071	.021
1945	.060	.043
1949	.058	.054

These figures are based on the assumption that throughout the period the reserves underlying insured pension plans were equivalent to 10 per cent of group life insurance in force, the 1950/1954 ratio (*Life Insurance Fact Book 1955*, pp. 26, 33). This procedure somewhat overstates the reserves behind insured pension plans, and hence the extent of the shift from col. 2 to col. 3.

Source: Same as Table 3.

in national assets throughout the period; and, second, by the predominance of the nonvoluntary component in the increase of the ratio since the 1930's.

The statistical material unfortunately does not permit calculation for either the voluntary or the compulsory forms of insurance, of the contribution of the various determining factors listed earlier to the movements of the ratio of insurance reserves to household or national assets. But there is little doubt about the main factors at work.

The observed increase of the ratio of reserves in pension and retirement funds to the aggregate assets of households is due primarily to a sharp increase in the proportion of the population (particularly the retired population) covered by such plans. At the turn of the century the number of beneficiaries of these plans was virtually zero, whereas at the present time most former wage and salary earners are covered by them. In addition, virtually all the other factors listed as determinants of the size of reserves have contributed to the increase in the ratio. In particular, the proportion of retirement life to working life—which is positively related to required reserves—has gone up considerably during the last fifty years as a result mainly of three developments: the later start of working life, which reflects a lengthening of the period of schooling; earlier retirement, due in no small measure to the spread of pension and retirement plans themselves; and an increase in the average length of life, resulting at least in part from advances in medicine.[11] The rate of earning on fund assets has declined, but since it is inversely related to required reserves, the development has reinforced the tendency towards increasing reserves implied in the increase in the ratio of retirement to working life, in the upward trend of desired retirement income, and in the increasing emphasis on annuities as against straight life insurance.

d. SHARE OF FINANCIAL INTERMEDIARIES IN NATIONAL LIABILITIES OTHER THAN MONEY AND INSURANCE RESERVES

From a theoretical point of view, the third component of the basic relation is probably the most interesting factor in determining the

[11] Although the statistics are not sufficient for close measurement, particularly because of their deficiencies in accurately reflecting the situation around the turn of the century, it is likely that the ratio of average retirement to working life has doubled, viz., from approximately one-thirteenth in 1900 to one-seventh in 1940 and possibly has further increased in the last dozen years (see e.g. S. Wolfbein in *Annual Proceedings of Industrial Relations Research Association*, 1954).

share of financial intermediaries in national assets. It is also the one most difficult to analyze. The first two components dealt with two noncompetitive types of liabilities in which the determination of the total volume outstanding was practically identical with that of the volume attributable to financial intermediaries, and the fourth component is of small practical importance. The third component calls for evaluation of the seemingly simple and straightforward ratio of financial intermediaries' "other" liabilities to all liabilities in the combined national balance sheet both excluding money and insurance reserves. But it presupposes the results of an investigation into what may be regarded as the most important subject of the theory of financial intermediaries, the competition between financial intermediaries and other borrowers for free funds, i.e. funds that are not by their nature bound to be directed towards financial intermediaries (e.g. money and insurance reserves) or towards nonfinancial users (e.g. participation in the equity of unincorporated business enterprises).

The over-all ratio of financial intermediaries' "other" liabilities to national assets, L_f/A_n, can be factored into three components. The first component, the ratio of financial intermediaries' to national assets L_f/L_n, is, in a simple transformation $L_f/(L_n - L_f)$, close to the more significant ratio of claims held by financial intermediaries and by other units.[12] It is thus an indication of the aggregate ratio between direct and indirect debt financing of all units other than financial intermediaries, a basic characteristic of financial structure. The second component is the ratio of "other" liabilities to total liabilities in the national balance sheet,

$$\frac{L_n}{L_n + M_n + I_n}.$$

The third is the ratio of national liabilities to national assets,

$$\frac{L_n + M_n + I_n}{A_n}$$

i.e., the national indebtedness ratio. This ratio is another very important characteristic of financial structure, which should be visualized as a weighted average of indebtedness of different sectors of similar groups of economic units.

[12] This statement is based on the assumption that the claims held by financial intermediaries are roughly equal to their own liabilities.

The main determinant of the national indebtedness ratio, which can also be written as

$$\frac{L_n + M_n + I_n}{(L_n + M_n + I_n) + E_n},$$

is the internal financing ratio, the ratio between internally supplied funds—saving—and total supply of funds. Indeed, if revaluations (realized and unrealized capital gains and losses) are absent, the two ratios are equal. Actually, they always differ, though to a varying extent; and the main cause of the differences—the change in price of assets (chiefly for tangibles and equities)—is the second main determinant of the indebtedness ratios. There are obviously further economic factors behind these two determinants, but their analysis, although essential for full understanding of the role of financial intermediaries, lies well beyond the scope of this brief summary.

The ratio of financial intermediaries' liabilities to national liabilities, the product of the first two components, needs to be scrutinized more closely, particularly insofar as it can be regarded as the result of the competition between direct and indirect holding of free claims (claims not necessarily making use of financial intermediaries) by the different sectors of the economy other than financial intermediaries.

In choosing between direct and indirect placement, households and business enterprises—and occasionally governmental organizations too—with funds available will usually consider the following factors insofar as they are relevant, or at least would consider them if they acted consciously and rationally:

1. Yield of different forms of placement
2. Liquidity
3. Risk of loss
4. Stability of price or yield
5. Divisibility
6. Convenience
7. Preservation of purchasing power
8. Income tax provisions
9. Legal arrangements and government regulation

A discussion of these factors will be found in Appendix H, as notwithstanding its general and summary nature it would take up too much space at this point.

In actuality, as Table 2 showed, the ratio of financial intermediaries' "other" liabilities to national assets increased continuously and fairly sharply from the turn of the century to the end of the 1930's, but by 1949 was back to the level reached two decades earlier. Both major components participated in the increase, but in different rhythm evident in columns 2 and 3 Table 5. The share of financial intermediaries in total liabilities (other than money and insurance reserves) reached its high in 1939 after an almost continuous and rather sharp rise over the preceding forty years. The ratio of liabilities (other than money and insurance reserves) to assets in the national balance sheet, on the other hand, rose until the end of World War II, but rather erratically. This was entirely due to a sharp increase, particularly after 1929, of the national indebtedness ratio (column 5), which in turn was primarily a reflection of the federal government's borrowing. The share of "other" liabilities to total liabilities in the national balance sheet (column 4), on the other hand, fluctuated only slightly from 1900 to 1933 but declined substantially in the following decade as currency, checking deposits, and insurance reserves gained in relative importance, changing the structure of national liabilities. Thus, in contrast to the trend of the two noncompetitive types of funds in relation to national assets, most of the advance in the ratio of financial intermediaries' "other" liabilities to national assets occurred in the period before rather than after 1929.

TABLE 5

Determinants of Share of Financial Intermediaries' Liabilities (Excluding Money and Insurance Reserves) in National Assets

Year	$\frac{L_f}{A_n}$ (1)	$\frac{L_f}{L_n}$ (2)	$\frac{L_n}{A_n}$ (3)	$\frac{L_n}{L_n + M_n + I_n}$ (4)	$\frac{L_n + M_n + I_n}{A_n}$ (5)
1900	0.049	0.188	0.261	0.828	0.315
1912	.058	.215	.270	.824	.328
1922	.076	.245	.310	.843	.368
1929	.085	.276	.309	.855	.361
1933	.093	.269	.348	.833	.418
1939	.110	.328	.335	.750	.446
1945	.089	.236	.379	.722	.525
1949	.082	.246	.334	.729	.458

Source: Same as Table 3.

e. SHARE OF EQUITY OF FINANCIAL INTERMEDIARIES IN NATIONAL ASSETS

The fourth term of the basic relation, the ratio between the equity in financial intermediaries and aggregate national assets—usually by far the smallest of the four components—is in itself of little economic importance. But it can be factored into three components, each of which has economic significance:

$$\frac{E_f}{A_n} = \frac{E_f}{E_{f+b}} \times \frac{E_{f+b}}{E_n} \times \frac{E_n}{A_n}$$

The first component, the ratio of the equity of financial intermediaries (as here defined)[13] to the equity in all business enterprises usually is quite small. In the United States it has risen during this century, as Table 6 indicates, from approximately one-tenth to one-sixth. There are two reasons for its relatively small size. First,

TABLE 6

Determinants of Share of Equity of Financial Intermediaries in National Assets

Year	$\frac{E_f}{A_n}$ (1)	$\frac{E_f}{E_{f+b}}$ (2)	$\frac{E_{f+b}}{E_n}$ (3)	$\frac{E_n}{A_n}$ (4)	$\frac{E_n}{E_u}$ (5)	$\frac{E_u}{A_n}$ (6)
1900	0.016	0.089	0.267	0.685	1.366	0.501
1912	.018	.115	.231	.672	1.300	.517
1922	.016	.085	.295	.632	1.419	.445
1929	.023	.125	.288	.639	1.405	.445
1933	.024	.140	.292	.582	1.413	.412
1939	.024	.154	.276	.554	1.382	.401
1945	.026	.170	.324	.475	1.480	.321
1949	.029	.163	.324	.542	1.480	.366

Source: Same as Table 3.

[13] For the purpose of this study the equity of financial intermediaries has been limited to (1) the book value of the stock of banks, property insurance companies, and investment companies; and (2) the surplus of life insurance companies, savings banks, savings and loan associations, and credit unions, all of which (with the exception of a number of life insurance companies) are operated as mutuals. The so-called share capital of savings and loan associations and of credit unions has been treated as a liability because that is what it economically is, irrespective of legal appearance. The same treatment has been applied to beneficiaries' interest in the assets administered by personal trust departments, although actually no creditor-debtor relationship exists here, in order to avoid classifying these funds with the equity of the administering institutions. That it would have been preferable to regard these funds as part of the assets and hence as reflected in the equity of the individual beneficiaries is arguable; but to do so would not have been compatible with the treatment of personal trust departments as financial intermediaries.

the total assets of nonfinancial business enterprises are generally larger than those of financial intermediaries. Secondly, the proportion of equity to total assets is almost always considerably lower among financial intermediaries than among other business enterprises. This in turn reflects one of the main characteristics of financial intermediaries—their function as a funnel for funds supplied by other economic units—and the ensuing tendency of reducing financial intermediaries' equity to the position of a guarantee fund rather than using it as the source of a substantial fraction of intermediaries' total funds.

The second component, the share of business equity in total equity, or the relation between the equity of business enterprises and ultimates,

$$\frac{E_{f+b}}{E_{f+b}+E_u},$$

is a factor of great economic significance and is closely connected with the relative importance of business enterprises in the economy. More specifically, it is influenced (1) by the share of business enterprises in aggregate national assets, (2) by the ratio of equity to assets of business enterprises, and (3) by the layering ratio of business equities (the ratio between the combined and the consolidated total equity of all business enterprises in corporate or unincorporated form). This component has shown a slow and irregular increase, rising from not much over one-fourth in 1900 to almost one-third since World War II.

The third component, the ratio of the combined equity of all economic units to aggregate national assets, is of considerable interest in itself—it is the complement to the ratio of national liabilities to national assets encountered in subsection (d)—and can be further factored into (1) the ratio of the aggregate equity in the national balance sheet to the equity of ultimates, which in turn is equal to national wealth, E_n/E_u; and (2) another ratio, E_u/A_n, which is closely related to the reciprocal of the financial interrelations ratio

$$\left(\frac{A_n - T_n}{T_n}\right)^{-1} = \left(\frac{E_u}{A_n - E_u}\right)$$

if net foreign balance is ignored. In contrast to the first two components of the ratio between equity in financial intermediaries and national assets, the third has shown a fairly continuous though

rather irregular decline, reflecting the increasing size, on a national scale, of debt relative to assets. Its decline has been due exclusively to the downward trend in the second factor (i.e. the rise in the financial interrelations ratio), since the first factor shows a slight upward movement which reflects a decline in the share of ultimates (hence an increase in the share of business) in national equity.

3. *Ultimate Economic Determinants*

While the immediate determinants of the share of financial intermediaries in national assets lend themselves to expression in a small number of fairly well defined and measurable relations which it was possible to review one by one, such a systematic procedure is not yet feasible in the case of what may be called the ultimate economic determinants. At best, the preceding section may have succeeded in identifying some basic economic facts or relations that influence the immediate determinants. We are not yet able to show the quantitative relationships between ultimate and immediate determinants, if indeed they exist, in either algebraic or statistical terms. We cannot even be sure that all important ultimate factors have been identified. Hence, we can only review the actual course of those of the supposed ultimate determinants for which statistical data are available and see how their movements may have affected the observed course of the ratio of financial intermediaries' assets to national assets, a ratio we are trying to explain. In this rudimentary attempt it is well to distinguish two types of ultimate determinants: first, ratios derived from a national balance sheet; second, certain factors which have been suggested as explaining the distribution between direct and indirect holdings of claims, a relation which has been regarded as one of the most important factors determining the position of financial intermediaries in the economic structure.

a. NATIONAL BALANCE SHEET RATIOS

Among balance sheet ratios (some of which have already come into the discussion) the following appear to be of substantial importance in influencing the trend in financial intermediaries' share in national assets:

1. The size of the business sector, which may be measured by the share of corporations and unincorporated business enterprises in national assets, tangible assets, or equity (excluding financial intermediaries from both numerator and denominator). These ratios are shown in Table 7, columns 2 to 4. Their movements can be

TABLE 7

Ultimate Economic Determinants of Financial Intermediaries' Share in National Assets

YEAR	FINANCIAL INTER-RELATIONS RATIO $\frac{A_n - T_n}{T_n}$	SHARE OF BUSINESS IN: Total Assets $\frac{A_b}{A_n - A_f}$	Tangible Assets $\frac{T_b}{T_n - T_f}$	Equity $\frac{E_b}{E_n - E}$	CAPITAL-OUTPUT RATIO $\frac{T''_n}{Y_n}$	DEAD-WEIGHT DEBT RATIO $\frac{D}{A_n}$	SHORT/LONG DEBT RATIO $\frac{L'_n}{L''_n}$	LAYERING RATIO, FINANCIAL INTER-MEDIARIES λ_f	PRICE MOVEMENTS: General Price Level $\frac{P_n}{P_{n-1}}$	Common Stock Prices $\frac{P'_n}{P'_{n-1}}$	Structures and Equipment $\frac{P''_n}{P''_{n-1}}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1900	0.76	0.342	0.314	0.249	2.68	—	1.06	1.090	0.98[a]	1.48[a]	..
1912	0.84	0.315	0.308	0.210	2.50	—	0.95	1.085	1.28	1.34	1.15
1922	1.00	0.342	0.353	0.277	2.75	0.025	0.94	1.091	1.58	0.95	1.74
1929	1.30	0.336	0.358	0.262	2.66	0.009	0.98	1.089	0.97	2.18	1.02
1933	1.27	0.334	0.345	0.262	4.77	0.018	0.70	1.085	0.79	0.47	0.84
1939	1.22	0.285	0.325	0.244	3.11	0.031	0.62	1.154	1.09	1.26	1.19
1945	1.73	0.256	0.305	0.285	1.76	0.133	0.46	1.097	1.51	1.46	1.41
1949	1.29	0.280	0.325	0.286	2.45	0.094	0.56	1.097	1.20	0.94	1.39

[a] Change from 1890 to 1900.

Source

Column

1-7 Derived from figures given in *A Study of Saving . . .*, Vol. III, Tables W-9 to W-16 and Table N-1. In col. 6 the numerator D is the equity of the federal government when it is negative. In col. 7, L'_n is short-term debt excluding money and L''_n is long-term debt consisting of bonds, mortgages and the assets of personal trust departments and excluding insurance reserves.

8 From Table 94, col. 4.

9 Derived from figures given in *A Study of Saving . . .*, Table T-16, col. 1 (adjacent years averaged to obtain year-end figure; figures for 1890, 1891, and 1950 from same sources as those given in Table T-16).

10 Derived from figures given for 1890 to 1934 in Alfred Cowles, 3rd *et al., Common-Stock Indexes, 1871-1937*, Cowles Commission for Research in Economics, Monograph No. 3, Principia Press, 1938, pp. 66-67 (December and January figures averaged), and for 1939 to 1949 in *Statistical Supplement to Survey of Current Business*, various issues (Standard and Poor's Corporation combined index of 402-416 common stocks; December-January figures averaged).

11 Derived from figures given in *A Study of Saving . . .*, Vol. III, Table W-1, cols. 3 and 11, and Table W-3, cols. 4 and 12.

assumed as a rule to have a positive though slight correlation to the share of financial intermediaries in national assets: when they rise (or fall), the share of financial intermediaries may be expected to increase (or decrease), other things being equal.

2. The financial interrelations ratio (the ratio of intangibles to tangibles in the national balance sheet). This ratio (see, for example, Table 7, column 1) may be expected to be positively related to the share of financial intermediaries in national assets. Indeed it must be so related unless the share of financial intermediaries in intangible assets moves in the opposite direction.

3. The capital-output ratio (Table 7, column 5). This ratio is a component of the share of money in national assets and also influences the financial interrelations ratio and the size of the business sector.

4. The deadweight debt ratio. It is theoretically defined as the proportion to national assets of debt in excess of debtors' assets, but in practice has to be measured (as in Table 7, column 6) as the ratio of the deficit (negative equity) in the balance sheet of the federal government to aggregate national assets, thus ignoring the fact that some units in other sectors also have deadweight debt. Not much can be said a priori on the effect of changes in deadweight debt on the share of financial intermediaries in national assets. The effect will depend chiefly on the extent to which war expenditures, historically responsible for most deadweight debt, are financed by borrowing from the banking system (more accurately, by sales to central and commercial banks which lead to an expansion in checking deposits) or from other lenders. If the banking system absorbs most of the deadweight debt, an increase in the share of financial intermediaries in national assets is to be expected, but is not certain, since the ensuing inflation may sufficiently raise the value of tangible assets and equities, of which financial intermediaries hold but little, to prevent the share from rising. Otherwise a decline in the financial intermediaries' share is more likely.

5. The short-long debt ratio. This ratio may be defined in two ways, one including and the other excluding money and insurance reserves from calculation. Under the second method (used in Table 7, column 7), the ratio is positively related to the share of financial intermediaries in national assets. Calculated by the first method, the ratio might be either positively or negatively related, because the relation between insurance reserves and other long-term debt may move differently from the ratio of short-term liabilities of finan-

cial intermediaries (other than money) to the aggregate of such liabilities in the national balance sheet. The short-long debt ratio possibly overlaps the deadweight debt ratio, since both short- and long-term liabilities may include deadweight debt.

6. Layering ratios. (a) The layering ratio of financial intermediaries taken by itself is, of course, positively related to the share of financial intermediaries in national assets; (b) the layering ratio of nonfinancial business, on the other hand, is more likely to be inversely related.[14]

We thus have four ratios which may be expected, as a rule, to be positively related to the share of financial intermediaries in national assets: the relative importance of the business sector (column 2 in Table 7), the financial interrelations ratio (column 1), the short-long debt ratio exclusive of money and insurance reserves (column 7), and the layering ratio of financial intermediaries (column 8); one ratio which may be expected to be inversely related to the share of financial intermediaries in national assets: the layering ratio of nonfinancial business; and two ratios whose relation to financial intermediaries' share in national assets is doubtful: the capital-output ratio (column 5) and the deadweight debt ratio (column 6). Table 7 shows the actual movements of these ratios.

For the first half of the twentieth century taken as a whole, two of the seven ratios did not change much (the relative importance of nonfinancial business and the layering ratio of financial intermediaries). Two went up substantially (the financial interrelations ratio and the deadweight debt ratio); two went down (the capital-output ratio and the short-long debt ratio); and one is unknown (the layering ratio of nonfinancial business). Since neither the numerical nor the algebraic relationship of each of these ratios to the share of financial intermediaries in national assets is known, we are unable to calculate the net combined effect of all six ratios.

b. PRICE MOVEMENTS

Probably the most important of the ultimate determinants of the share of financial intermediaries in national assets which are independent of the national balance sheet are the movements of asset prices. Movements in the prices of real estate and corporate stock, of equipment and inventories, directly affect the share of financial intermediaries in national assets because most of the assets

[14] Statistical material at hand does not yet permit calculation of the layering ratio of nonfinancial business for a protracted period.

held by financial intermediaries are not subject to such price changes, whereas the majority of the assets owned by all other groups taken together are. Hence the share of financial intermediaries in national assets will tend to move inversely to asset prices, other things being equal. Asset prices in turn move in the same direction as the general price level (measured, for example, by the so-called gross national product deflator), although sometimes with considerable lags and often in a proportion differing from the rise or fall in the general price level.[15] We might therefore expect the ratio of financial intermediaries' assets to national assets to decline during periods of rising prices and to increase during periods of declining prices. Alternatively, if the existence of an upward trend in the ratio caused by factors other than price movements is assumed, one would be led to expect the increase in the ratio to be more rapid during periods of falling than of rising prices.

These theoretical expectations are only partly borne out by a survey of actual developments. The rapid rise of the ratio during the Great Depression (at the rate of one-half per cent of national assets per year), when prices experienced their sharpest decline on record, and the decline in the ratio between 1945 and 1949, when prices rose sharply, both conform entirely to expectations. It might also be claimed that the relatively slow rise in the ratio between 1922 and 1929 (of only 0.15 per cent of national assets per year) in the face of a sharp advance in the prices of most equities and some types of real estate, as well as the stability of the ratio between 1949 and 1952, when asset prices (other than common stock) rose only moderately, can be reconciled with the theory. On the other hand, the rise in the ratio during the longer periods of 1901 to 1922 and 1934 to 1945, which together account for nearly two-thirds of the entire period, is difficult to explain. In these two periods the ratio increased by 0.14 and by 0.62 per cent of national assets a year while prices rose substantially and almost continuously. For the 1930's the apparent deviation from the theory may possibly be explained by the extraordinary strength of other factors, particularly (1) the sharp upward movement in Cambridge *k* and (2) the marked increase in the evaluation of the advantages

[15] There is perhaps only one case in American experience in which the deviation of an important type of asset prices from the general price level was prolonged and very pronounced. This was the extraordinary advance in common stock prices during the late 1920's which reflected the decline (as it turned out, temporary) in the rate of capitalization of current income or a serious overestimation of future income from stocks.

of indirect holding of claims, which together completely overbalanced the basic tendency of rising prices to stop, or at least to brake, advances in the ratio of financial intermediaries' to national assets. Two of the three remaining periods (1913 to 1922 and 1940 to 1945) in which prices and the ratio rise together—prices sharply, the ratio moderately—are, of course, strongly influenced by the heavy accumulation of deadweight debt financed to a substantial extent by an expansion of money in circulation, a development from which one would expect an increase in the share of financial intermediaries in national assets. The conclusion from this first glance at the figures apparently must be that a price movement needs to be very sharp to have a patent, and inverse, influence on the observed share of financial intermediaries in national assets. This does not mean that price movements do not at all times exercise an influence on that share, but only that during the past fifty years their influence generally seems to have been more than offset by other factors.

Some experimentation with the figures indicates that the apparent lack of clear evidence of the theoretically expected effects of price movements on the share of financial intermediaries in national assets may be due to the roughness of the first approach. Indeed it is probable that if the upward trends of the share of financial intermediaries in national assets and of the level of asset prices, both of which have been so prominent during the past fifty years, are eliminated, a relation of the theoretically expected character emerges with reasonable clarity. Thus, correlation of the annual rate of change (calculated from data for the twelve benchmark dates from 1870 through 1952) in the ratio of financial intermediaries' to national assets (S) and in an index of asset prices (P; tangible assets and common stock weighted 4 and 1 respectively) yields the relation:

$$S = -0.935\,P + 3.17$$

with a correlation coefficient of −0.67. This may be interpreted to indicate that:

1. When asset prices remain unchanged there has been a tendency for the ratio of financial intermediaries in national assets to increase by slightly over 3 per cent per year.

2. An annual increase in asset prices by, say, 2 per cent, is as a rule accompanied by an increase in the ratio of 1¼ per cent a year, while a price decrease of equal magnitude implies an increase in the ratio of over 5 per cent.

3. Asset price movements statistically "explain" almost one-half of the observed variations in the share of financial intermediaries in national assets ($R^2 = 0.45$).

Although it is not possible to array in order of theoretical importance the factors which have been designated here as the ultimate economic determinants, experience in this country during the past half century suggests that three of them are dominant: the financial interrelations ratio, the deadweight debt ratio, and the movement of asset prices. These three factors, it should be remembered, are not independent, since the second and third are reflected in the financial interrelations ratio, although they do not determine it.

To proceed to an analysis of the forces behind those three factors would be inviting, but seems outside the province of this study.[16] It is evident, however, that the analysis would immediately touch on fundamental economic factors such as the character of the country's economic and particularly its financial organization, the presence of large-scale war expenditures and their financing, and basic monetary policies.

4. *The Outlook*

A thorough evaluation of the outlook for the position of financial intermediaries in the economic structure of the United States, or even of only the share of financial intermediaries in national assets, is entirely beyond the scope of this chapter. All that can be done is to consider briefly whether those trends in the share of financial intermediaries in national assets and in its components and determinants that have been observed during the last fifty to a hundred years are likely to continue in the future, i.e. for the next two to three decades. Even within this narrow scope, whatever can be said must be tentative.

Looking at the trend of financial intermediaries in national assets during the last century as it appears in Chart 1, above, we may easily form the impression of a fairly regular growth, and from that impression may infer that continuation of the trend is a reasonable assumption to make. The ratio doubled during the second half of the nineteenth century, and again doubled during the first

[16] A few tentative steps in that direction were taken in "The National Balance Sheet of the United States of America, 1900-1949," *Income and Wealth*, Series IV, Cambridge, Bowes and Bowes, 1955, and in "Financial Structure and Economic Growth in Advanced Countries," *Capital Formation and Economic Growth*, Princeton University Press for National Bureau of Economic Research, 1956.

half of this century. There is, however, sufficient irregularity in the figures, particularly in the absence of any net increase in the ratio between 1949 and 1952, to raise doubts whether the secular trend that operated during most of the past one hundred years is still continuing at full strength. Tentative judgment about this question requires a glance at the components of the trend and their determinants, especially the first three main components of the basic relation as they have been distinguished in the preceding discussion. We may forego examination of the fourth component (the share of financial intermediaries' equity in national assets) because of its small absolute size and the apparent lack of pronounced or sustained movements (Chart 2).

a. RATIO OF INSURANCE RESERVES TO NATIONAL ASSETS

Of the main components of the share of financial intermediaries in national assets, the one most amenable to an appraisal of outlook is the share of insurance reserves in household assets.[17]

Its first component, the share of life insurance reserves in household assets, has remained fairly stable since 1933, as is shown in Table 4. A substantial increase is, of course, possible if a radical shift from straight line to endowment types of insurance occurred, or if beneficiaries should rapidly adapt the face value of their policies to the sharp increase in the cost of living since the 1930's. Some movements in both directions may be expected, but there is no reason to assume that they will be strong enough to lead to more than a modest increase beyond the present share of life insurance reserves in national assets.[18]

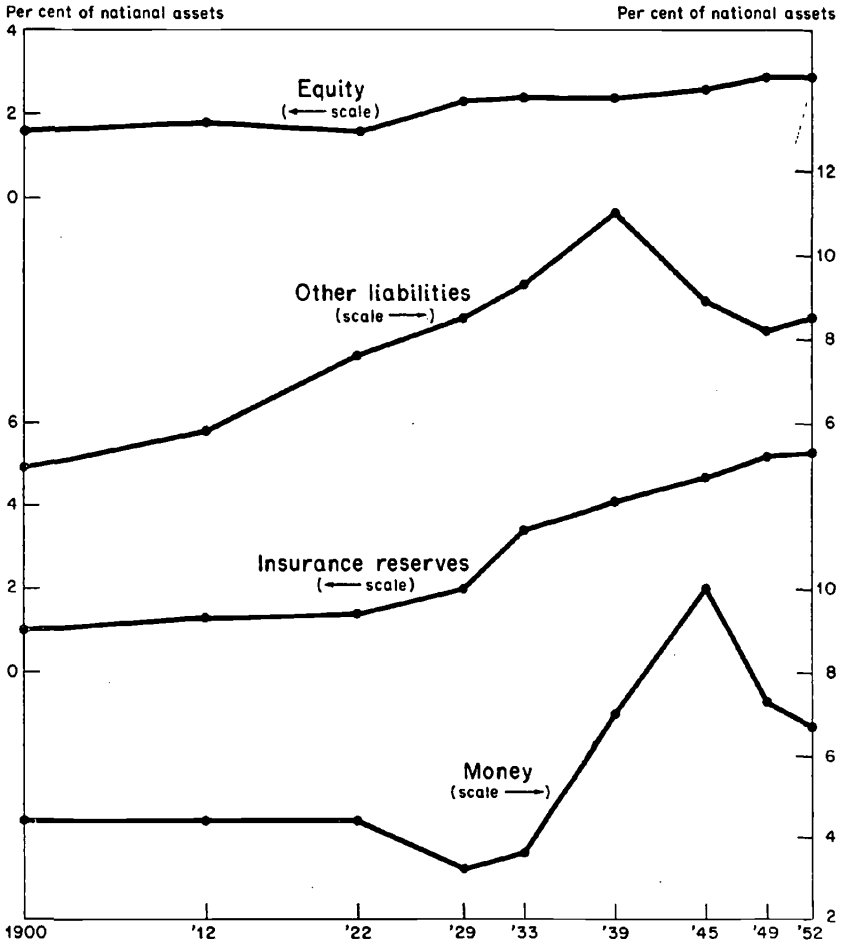
In the case of reserves of social insurance and pension plans, on the other hand, the evidence indicates a continuation of the upward trend, although at a less pronounced rate than that observed during the past twenty years, which may be regarded as the formative period for this type of financial intermediaries. First, the proportion of the population above retirement age covered by pension and retirement plans is likely to continue to increase. However, the rate of increase must lessen markedly, since most wage and salary earners

[17] The correction factor (the share of households in national assets) can probably be assumed to continue on the level which it has maintained without substantial change throughout the past fifty years.

[18] The movements of national assets themselves, of course, are dependent upon changes in national income, the capital-output ratio, the financial interrelations ratio, and the price level. I am not bold enough to discuss the outlook for each of these four factors, let alone for a specific combination of them.

CHART 2

Relation of Liabilities and Equity in Financial Intermediaries to National Assets, Benchmark Dates, 1900-1952



Source: Table 2.

are already covered. Second, the tendency towards reducing the margin between retirement income and average life income is likely to continue. Third, the ratio of retirement life to working life will probably rise further, although again the rate of increase can hardly be as rapid as it has been in the past. Fourth, there is likely to be a further decline in mortality after retirement. Fifth, the ratio of benefits to contributions is bound to rise substantially—

though not necessarily in the immediate future—as the plans become older, and this may turn out to be the quantitatively most important factor in reducing the rate of growth of pension funds.

If these were the only factors, one would be fairly safe in expecting a continuing increase in the rate of social security and pension plan reserves to national assets, although at a much slower rate than that observed during the past twenty years. Changes in the rates earned on reserves are not likely to upset this expectation. The decisive factor may therefore be the presence or absence of a substantial change in the ratio of actual reserves to actuarially required reserves. So far as private pension plans are concerned, the ratio is more likely to rise than to decline; this would constitute an additional factor making for an increase in the ratio of total insurance reserves to national assets. There is a possibility, however, that government social insurance funds, whose reserves are already well below their actuarial level (very difficult to calculate because of the periodic adjustments in benefits not provided for in the original contract, if the underlying legislation is regarded as such),[19] may shift more and more towards a pay-as-you-go basis. If such a movement became pronounced, it could stop the trend towards a further increase in the ratio of pension and retirement reserves to national assets and might even reverse it.

b. RATIO OF MONEY TO NATIONAL ASSETS

An evaluation of the outlook for movements in the ratio of the volume of money to aggregate national assets would require nothing less than an appraisal of the trend in Cambridge k and in the capital-output ratio, not to speak of several other factors. That is more than can be undertaken here.

Probably neither the sharp increase in k during the 1930's (which reflected a sudden growth in inactive money) nor the pronounced

[19] One recent estimate put actuarially required reserves for social security funds at $200 to $300 billion (M. A. Linton, *Michigan Business Review*, July 1953, p. 18)—note the immense margin in the figures—as against the actual figure of less than $40 billion. If the estimate refers to reserves required when the estimate was made, they would amount to approximately 7 to 11 per cent of total national assets of 1952 (one-third to one-half of the present aggregate share of financial intermediaries in national assets). Should the estimate be applicable instead to the period when the ratio of reserves to national assets may be expected to level off—a date at least several decades distant—then the increase in the ratio of financial intermediaries' total to national assets would, of course, be considerably smaller because of the upward trend in total national assets, and might easily be only half as large.

decline between 1945 and 1952 (which has partly reversed the rise of the 1930's) represent long-term movements. We may rather venture the opinion that the trend of the ratio of money to national output is likely to be horizontal or only slightly upwards during the period with which we are concerned.[20]

The capital-output ratio, which is inversely related to the ratio of money to national assets, has been low during the last twenty years compared to its level during the preceding fifty to seventy-five years for which we have information. Hence, if there is a definite movement in the ratio it may be expected to be upwards, in continuation of the trend observed between 1945 and 1949, which apparently has come to a halt in the last few years. Even if an upward movement occurs, however, there is doubt whether it will restore the capital-output ratio fully to its pre-1930 level.

Taking the movements of the ratio of money to output and the capital output ratio together, and trusting that changes in the three other components of the ratio of money to national assets, M_n/E_n, E_u/E_n, and E_n/A_n, will, as before, be small or offsetting, we ought not to expect a substantial change in the ratio of money to national assets: the two main factors which influence it are not expected to show very pronounced movements, and insofar as such movements develop, they are more likely to affect the over-all ratio of money to national assets in an opposite rather than the same direction.

C. RATIO OF OTHER CLAIMS AGAINST FINANCIAL INTERMEDIARIES (EXCLUDING MONEY AND INSURANCE RESERVES) TO NATIONAL ASSETS

This component is probably the one for which the outlook is most difficult to evaluate, yet also the one of greatest significance for the theory of financial intermediaries. The ratio has failed to show a marked trend since 1933, after a substantial increase for a period of at least thirty and probably more than fifty years. To judge probable trends it is necessary to look separately at the two components

[20] The latest and most detailed analysis of the secular trend in the velocity of money (the reciprocal of the ratio of money in circulation to the value of output) concludes that there is a downward secular trend in that ratio and that it may be assumed to continue (C. Warburton, *Quarterly Journal of Economics*, LXIII, pp. 86-90. Warburton, however, includes time deposits in commercial banks, which have been excluded from the ratio M_n/A_n). This, of course, means a rising trend in the ratio of money to output. Warburton's conclusion, however, is not undisputed among monetary theorists (see the citations in E. Doblin, *Review of Economics and Statistics*, XXXIII, 1949, p. 201; Doblin himself asserts, p. 205, on the basis of international data, "It seems that in the course of a country's economic growth, its income velocity declines.").

of the ratio: the share of liabilities of financial intermediaries in total liabilities (excluding money and insurance reserves from both); and the ratio of total liabilities to national assets.

The second component has fluctuated widely without showing a marked secular trend, at least since late in the nineteenth century. It is obviously very sensitive to the changes in deadweight debt and to large-scale movements in asset prices. If we may assume that in the absence of a major war no substantial increase will occur in the deadweight debt of the federal government and that only a slow and moderate rise in the price level of assets is to be expected, then it is not likely that the ratio of national liabilities (excluding money and insurance reserves) to national assets will rise substantially, although it may well advance somewhat beyond its present historically rather low level.

The first component, the ratio of financial intermediaries' to total national liabilities (excluding money and insurance reserves), has shown a definite though irregular trend upward since 1900 except during World War II and the Great Depression. If a continuation is to be expected, the expectation would be based mainly on the general tendency towards the institutionalization of creditor-debtor relationships in the economy, a tendency clearly evident over the last half century.

Considering the two subcomponents in combination, a slight upward trend in the ratio of financial intermediaries' to total national liabilities (excluding money and insurance reserves) is more likely than a substantial decline, and more likely, even, than a horizontal movement.

d. TOTAL SHARE OF FINANCIAL INTERMEDIARIES IN NATIONAL ASSETS

The considerations advanced in the preceding pages lead to the tentative conclusion that three of the four main components of the share of financial intermediaries in national assets (the ratios of money, insurance reserves, and other liabilities of financial intermediaries to national assets) are more likely to increase than to remain unchanged or to decrease, while the fourth component (financial intermediaries' share in total equity) is small and is not expected to change much.

Evaluation of past trends and of their components and determinants thus leads one to expect a further increase in the share of total assets of financial intermediaries to aggregate national assets beyond the present level of slightly more than one-fifth.

Similar considerations make it very unlikely, however, that the increase could be at the average rate observed between 1860 and 1952 (approximately 1.8 per cent per year as calculated from the logarithms of the values of the ratio), or even at the rate calculated for the period from 1900 to 1952 (1.6 per cent per year). Such rates would result in shares of financial intermediaries in national assets of 35 (32) per cent in 1970 and 58 (52) per cent in the year 2000.[21] While such ratios cannot be ruled out on the basis of what we know about the general theory of financial intermediaries,[22] it does not appear likely that they will be reached (particularly those which imply a continuation of the 1860 to 1952 rate of increase), barring large-scale war expenditures financed primarily by borrowing from financial intermediaries.

There are, however, three factors which might upset this conclusion and would permit considerably higher shares of financial intermediaries in national assets than can now be anticipated. The first of these—and a rather unlikely one—is a substantial increase in the layering ratio of financial intermediaries, a ratio which has been remarkably stable during the past fifty years.[23]

The second is a sharp increase in the ratio of actual to actuarially required reserves of government trust and pension funds. Such an increase, it has been argued, is unlikely. Indeed, a decline in the ratio is at least as probable as an advance.

The third possibility is a large-scale increase in the indirect holding of corporate stock. Up to the present time indirect holding of stock is still the exception rather than the rule, particularly if the holdings of stock in personal trust accounts administered by banks and trust companies, which are of a rather special character, are

[21] Backward extrapolation of the 1860 to 1952 rate of increase of the ratio leads to a value of slightly less than 2 per cent in 1805, a figure which is entirely compatible with the very rough estimates that can be made for the actual ratio of financial intermediaries' to total national assets in that year. This, of course, may be nothing more than a coincidence that might disappear or weaken if better figures were available for national assets and for the assets of financial intermediaries during the nineteenth century.

[22] Continuation of the trend obtained from the ten ratios from 1870 through 1945, however, is almost impossible, as it implies a share of financial intermediaries in national assets of approximately 75 per cent in 2000. This is just a warning against uncritical use of extrapolated trend values.

[23] Since unincorporated business enterprises have been regarded as independent economic units, so that their equity reappears among proprietors' assets, shifts between corporate and unincorporated business in themselves would not affect the size of national assets or the share of financial intermediaries in them. Large-scale shifts in this relationship, moreover, are not likely and in fact have virtually been absent for the last twenty-five years.

disregarded. A situation is at least imaginable, however, in which a high proportion of the stock in large corporations which is now owned in individually small amounts would be held not by the ultimate owners themselves but through intermediary institutions like investment companies. But even if we assume that at some future time as much as three-fourths of all corporate stock would be held indirectly (compared to about one-third in 1952)[24] this would not in the present, or in a similar, situation increase the ratio of financial intermediaries' assets to national assets by much more than 0.05 points (i.e. by not quite one-fourth of the present ratio). Hence, even such a radical change in financial practices would by itself be far from sufficient to increase the shares of financial intermediaries in national assets to the figures obtained for the end of this century by straight line extrapolation of the increase in financial intermediaries' share observed over the last fifty to one hundred years.

Straight line interpolation, whether of the original ratios, or, more appropriately (because rates of growth are involved), of their logarithms, may not be the best procedure, as Chart 1 shows. A parabolic trend, implying declining rates of growth, seems to fit the observed data somewhat more closely. If such an extrapolation is based on the logarithms of the thirteen ratios between 1860 and 1952, the curve obtained indicates a ratio of approximately 33 per cent in 1970 (compared to an actual ratio of 22 per cent in 1952) and one of slightly more than 50 per cent in 2000. Like all extrapolations this one is implicitly based on the assumption of a continuation of the basic forces at work in the past and on the absence of radical changes in structure, and thus must be severely qualified as an indicator of things to come. Its results do not seem to be ruled out by our experience with the rate of expansion of financial intermediaries in the United States. The extrapolated values, however, are still considerably higher than those obtained by an evaluation of the individual components of the ratio of financial intermediaries' to national assets attempted earlier in this section. In other words the more detailed, though still quite rudimentary and tentative, evaluation of the forces now at work implies a deceleration or retardation in the rate of increase of financial intermediaries' share in national assets compared to the rate indicated by nothing but the trend itself of this share during the past century.

[24] Indirect holdings here include not only those by financial intermediaries (including personal trust departments), but also the minority holdings of corporations other than financial intermediaries.